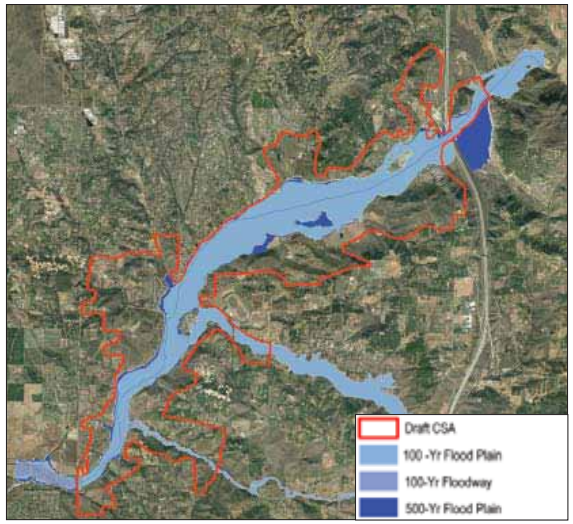
III. ANALYSIS AND SYNTHESIS

See Appendices for full white paper reports on the subjects covered in this chapter.

Core Study Area
As one of the first steps in planning the San Luis Rey River Park, the County of San Diego worked with the Planning Team to define the study area for the project. Due to the sensitivity of the corridor's biological resources, biological information from the County's GIS database was used to determine the Core Study Area boundary (CSA). The Draft Core Study Area was created through evaluation of the following four primary criteria: 100-year/ 500-year floodplains, Pre-Approved Mitigation Areas, Habitat Value, and existing development. The Draft CSA boundary encompasses areas that fall within any of these three criteria and are contiguous with the river corridor. Where areas falling within these criteria extended far (+1.5 miles) from the river corridor, the Planning Team made subjective decisions regarding the limits of the Draft CSA boundary. In these few locations, the boundary is defined by a road or identifiable geographical boundary.

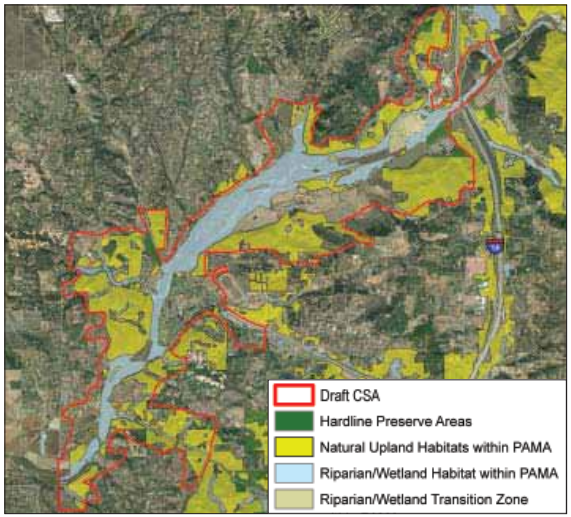
After this overlay exercise, the Planning Team cross-checked the resulting boundary against aerial photography and revised/ refined the boundary to remove developed areas. The CSA was further refined according to individual landowner requests. The final CSA (at time of printing) is represented in the CSA Overlay Map (opposite). It is likely that the CSA boundary will continue to evolve as park planning/ design progresses.

Floodplain
Stringent development restrictions within the 100-year floodplain have diminished land values and largely preserved this land as undeveloped, vacant, or agricultural. These restrictions make the 100-year floodplain very compatible for open space preserve or recreational park development. All areas within the 100-Year floodplain were included within the CSA.



100 Year and 500 Year Flood Plain

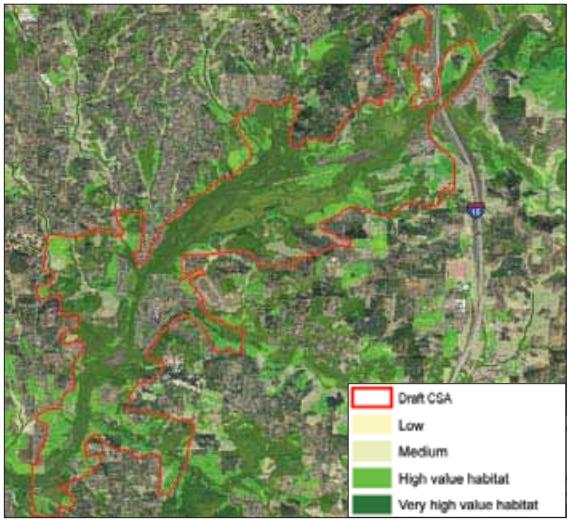
Pre-Approved Mitigation Areas (PAMA)
Much of the area around the San Luis Rey River has been proposed as PAMA land due to its potential as valuable habitat. The proposed designations within the PAMA are: Riparian/ Wetland Habitat within PAMA; Riparian/ Wetland Transition Zone within PAMA; Natural Upland Habitats within PAMA; and Hardline Preserve Areas. The habitat preservation/ restoration focus of the Master Plan, in combination with the intention to identify the River Park as a major focus (recipient) of regional and local mitigation efforts (particularly as related to SR-76 improvements) led to the decision to include most large PAMA areas contiguous with the river corridor into the CSA.



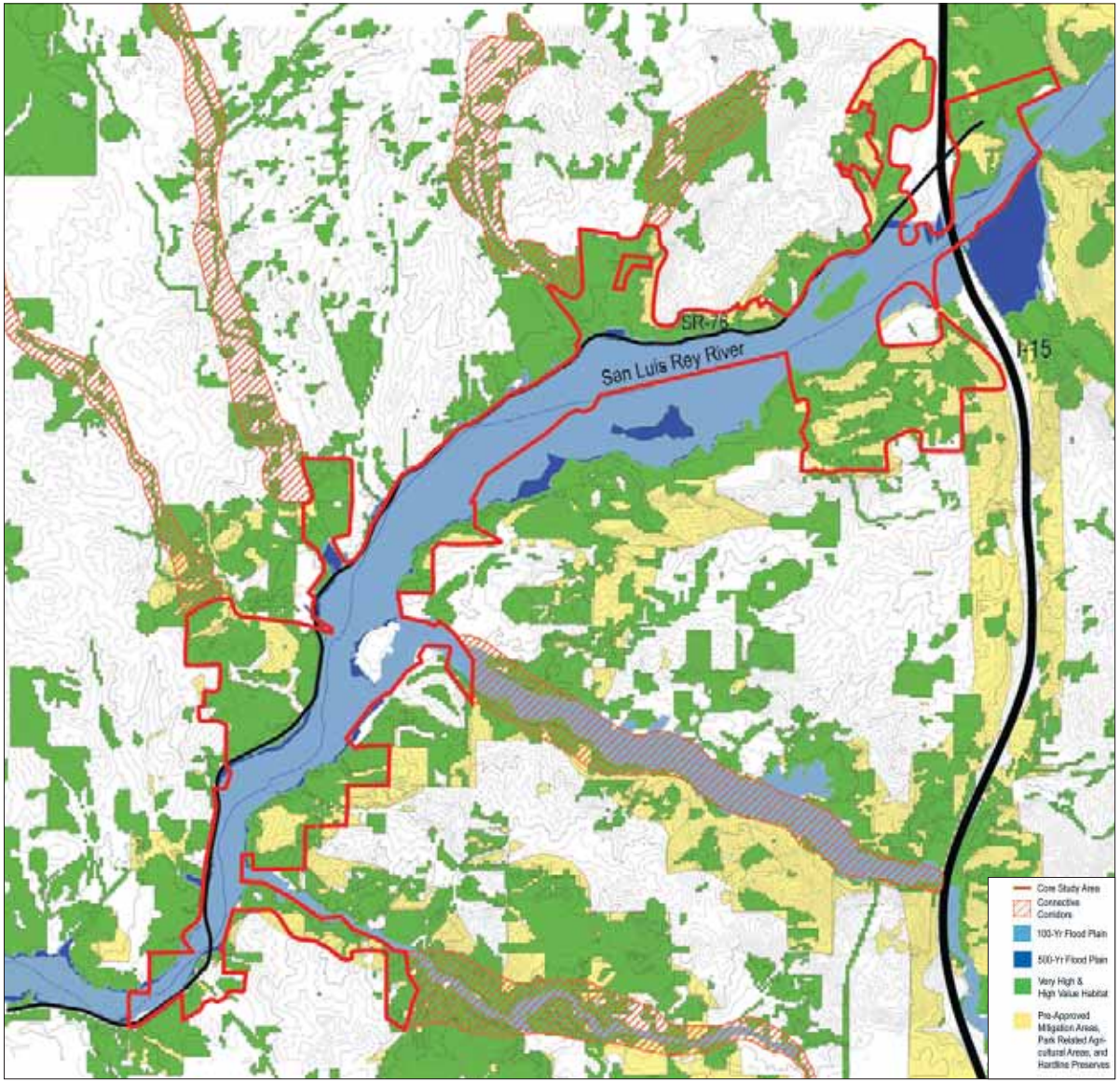
Pre-approved Mitigation Areas

Habitat Evaluation Model

The predominant focus of the San Luis Rey River Park will be the creation of a large open space preserve encompassing much of the richest habitat within the riparian zone as well as selected upland areas. In envisioning this preserve, it was important to incorporate lands that were considered to have High or Very High Habitat Value, according the County's Habitat Evaluation Model. Most large High/ Very High value habitat areas contiguous with the river corridor were incorporated into the CSA.



Habitat Evaluation Model



CSA Overlay Map

In assessing the appropriate types and quantities of different park elements and uses (park programming) to be incorporated within the San Luis Rey River Park's sensitive biological context, the Planning Team divided these uses into three levels, or tiers, relating to respective impacts upon the site and adjacent habitat that the development of each of these uses entails; Tier A park uses having the highest impacts and Tier C uses having the lowest impacts.

Tier A Park Uses - Active Park Nodes
Tier A park uses are those that require significant site disturbance or grading such as sports fields, parking and staging areas, and interpretive gathering spaces. Several critical site selection criteria informed the placement of these highest impact park uses. These uses had to be located where they would have only minimal impacts upon the sensitive habitat areas (out of riparian zone), require minimal grading (flat sites), and be primarily out of the 10-Year Flood Plain.

In order to ensure minimal impacts on sensitive vegetation communities, Tier A uses were located only on areas with little or no native vegetation cover: areas that are either currently/ recently disturbed, agriculture lands, or areas covered by non-native grasslands or eucalyptus woodlands. These types of vegetation would require minimal to no mitigation if developed as park sites.

The Planning Team also determined that Tier A park uses should be consolidated to the extent possible to minimize redundant investments in vehicular access drives, utility services, maintenance expenditures, and as well as impacts to proximate sensitive habitat areas: fewer, larger, consolidated active recreation nodes are more efficient and have less impact than more smaller active recreation nodes dispersed throughout the CSA.

Precedent Images: Tier A Programming

The Tier A Site Selection Overlay Diagram (following page) shows the overlay of the four critical layers of information that led to the identification of potential Tier A sites: 10-Year floodplain, shallow slopes, non-sensitive vegetation, and developed lands.

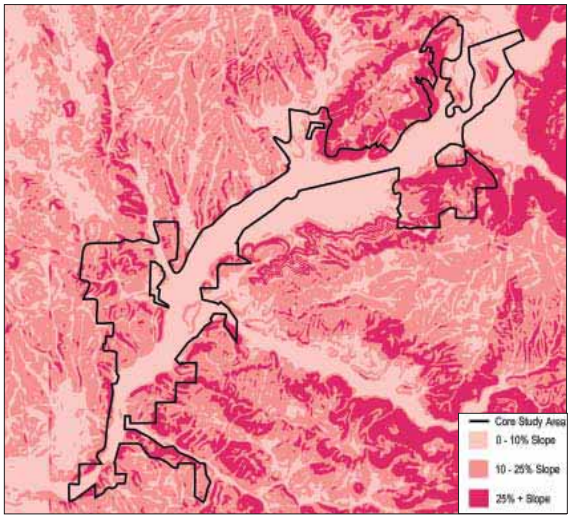
Less than 10% Slope
Due to the larger footprints of these Tier A uses and the desire to minimize grading of the corridor's steep hillsides, Tier A uses were located only on sites that were primarily flat, with slope gradients less than 10%.

10-year Floodplain
Although some Tier A program elements such as sports fields can flood with little damage and addititional maintenance, it is important to locate the larger financial park investments such as architectural structures and utility boxes outside the 10-Year Floodplain. Where possible, Tier A program elements should be located outside the 10-year floodplain.

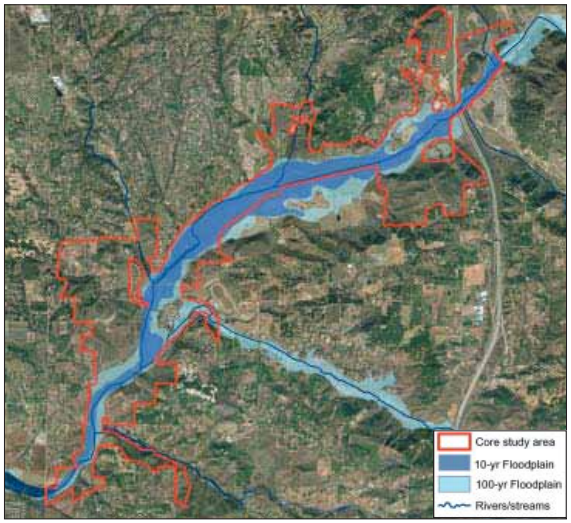
Developed Land
Tier A park sites could not be located on currently developed land. Developed land thus became the third constraint.

Non-Sensitive Vegetation
Sensitive riparian, wetland, and upland vegetation communities were avoided when selecting Tier A park sites. These sensitive vegetation communities are shown in green on the vegetation diagram and the constraint overlay.

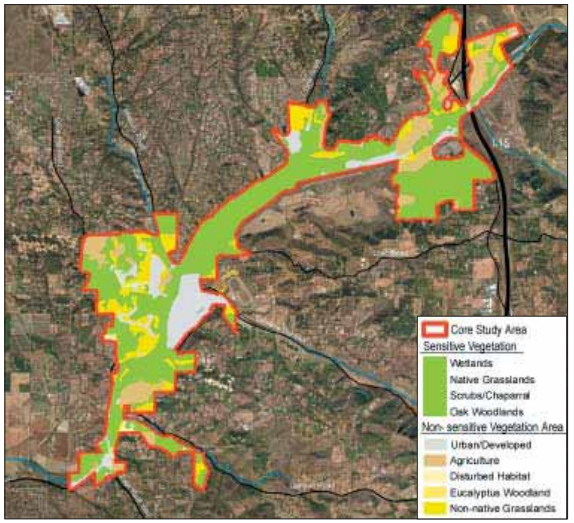
Once these layers were overlaid, all sites that were not completely covered by one of these constraints were considered potential Tier A sites and further analyzed for suitability to accommodate desired park program and use.
The above process was utilized to identify and prioritize 15 potential Tier A sites as shown on the constraint overlay (A1- A15 on the following page).



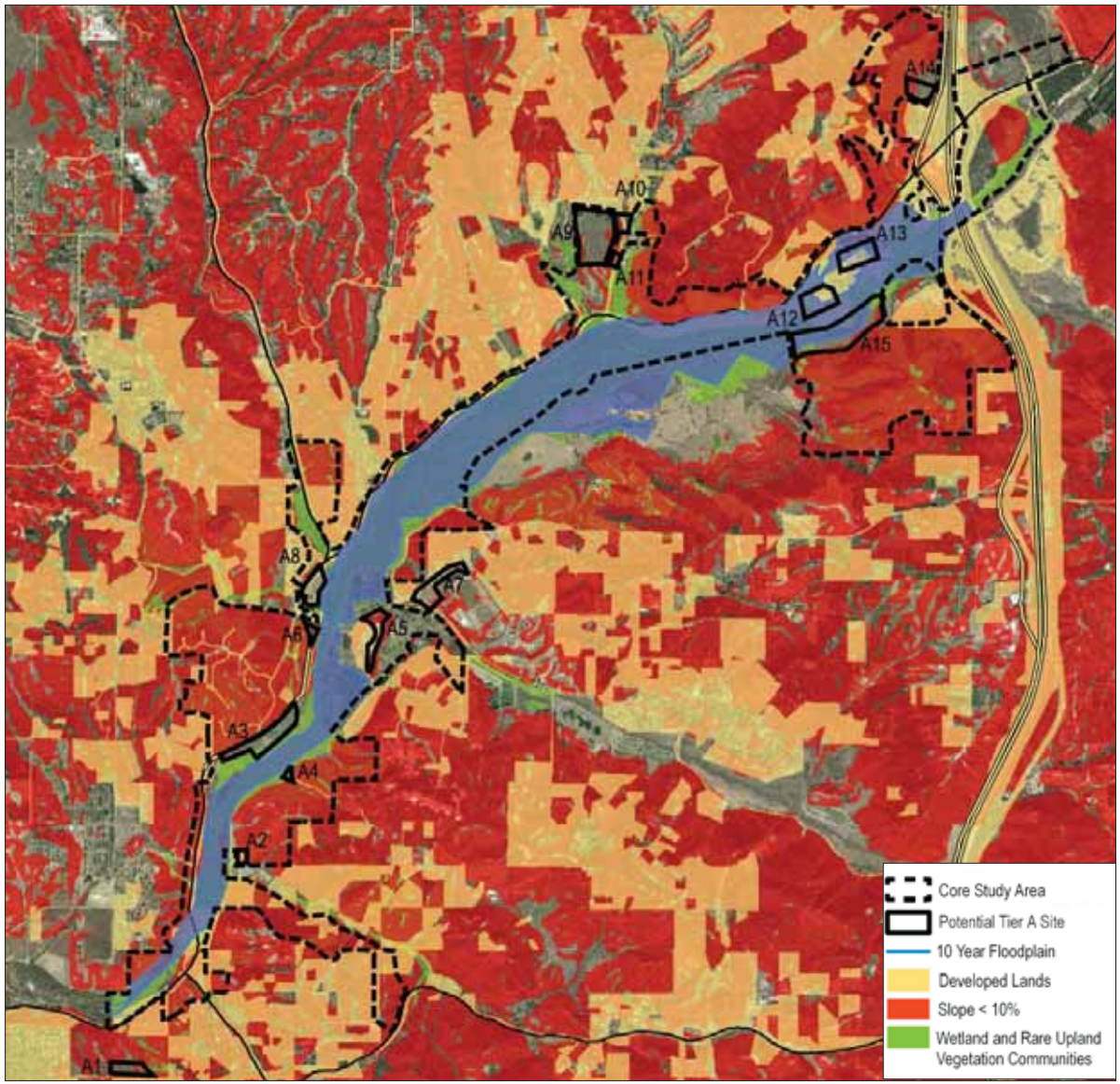
Slope Map



10-Year and 100-Year Floodplain Map



Vegetation Sensitivity Map



Tier A Site Selection Constraint Overlay Map

TIER A SITE SELECTION/ EVALUATION

Tier A Site Criteria Matrix

After identifying the fifteen potential Tier A sites, the Planning Team went through the process of analyzing each site to assess its unique attributes and programming potentials. Categories utilized to assess and evaluate these sites are shown on the Tier A Evaluation Criteria Matrix (opposite page).

Ultimately, the most critical factor informing which of these potential sites were incorporated into the Master Plan was the willingness of respective owners to consider selling these properties to the County at this time. The County decided at the outset of the planning process that it would only acquire land from willing sellers. Potential Tier A sites that could not be acquired from willing sellers (at this time) were removed from further consideration in the planning effort, although if these lands become available in the future, they could be incorporated into the River Park. The owners of only five of these fifteen sites indicated willingness to consider the sale of these properties to the County, thus simplifying the potential distribution of Tier A programming throughout the park.

Site Number	Slope (Under 10%)	(D) Disturbed (mown or tilled) (A) Agriculture	Vegetation Type	Car Access (E) Existing (P) Potential	Unofficial Trail Access	Floodplain 10 YFP 100 YFP	Cultural Resourses	Acreage	Distinguishing Characteristics	Potential Tier A Programming	APN- Assessor Parcel Number	Current Land Acquisition Opportunity (Willing Seller)
SiteA1	3/4 is <10%	D	Non-native grassland	P	yes	outside 100 YFP	no	10	vicinity to Oceanside residential population density, off 76	performance/ gathering	1700202100	no
SiteA2	yes	D	Scrubs/chap., non-native grassland	E	yes	outside 100 YFP	no	4	north side of Little Gopher Canyon/Old River Road intersection	staging area, dog park	1261705200	maybe
SiteA3	yes	D	Non-native grassland, Developed	E	yes	1/2 w/ in 100 YFP	no	27.1	vicinity to 76 and river	all programming except performance/ gathering	1263200900 & 1260806900	maybe
SiteA4	no	D	Scrubs/ chaparral	E	yes	1/3 w/in 100 YFP	yes- oppprtunity	2.2	Disturbed areas near Old River Road/Detroway intersection	staging area	1261203400	no
SiteA5	no	D	Developed	E	no	outside 100 YFP	yes- constraint	9.3	vacant area surrounding school	performance/ gathering	1260607200 & 1260702200	no
SiteA6	no	D	Wetlands	E	yes	1/2 w/in 100 YFP	yes- oppprtunity	2.7	adjacent to Olive Hill/ SR76 intersection	staging area	1262304800	no
SiteA7	3/4 is <10%	D	Developed	E	no	outside 100 YFP	no	17.5	vicinity to the school, Bonsall center	active recreation, performance/ gathering, staging area	1260606100 & 1260605900	no
SiteA8	yes	A	Agriculture	E	yes	w/ in 100 YFP	no	8.2	vicinity to residential population density, river, bridge and commercial area at Mission Road	all programming except performance/ gathering	1262302700	no
SiteA9	2/3 is 10%	D	Non-native grassland	E	yes	outside 100 YFP	no	42.3	views of the river and rolling hills	active recreation, staging area, performance/ gathering	1243403400	maybe
SiteA10	yes	D	Non-native grassland	E	no	outside 100 YFP	no	4.7	off the river corridor and away from the traffic of 76	small active recreation, staging area	1243404800	no
SiteA11	yes	D	Developed	E	no	outside 100 YFP	no	3.2	off the river corridor and away from the traffic of 76	small active recreation, staging area	1243403300	no
SiteA12	yes	D	Agriculture	E	yes	1/2 w/in 10 YFP	no	18.7	vicinity to I-15 and 76 and river with trail access, w/in 10 YFP	all programming except performance/ gathering	1250801300	no
SiteA13	yes	A	Agriculture	E	yes	1/2 w/in 10 YFP	no	9.8	vicinity to I-15 and 76 and river with trail access, 10 YFP	active recreation, staging area	1250801400	maybe
Site A14	yes	D	Non-native grassland	E	yes	outside 100 YFP	no	9.6	vicinity to housing development and I-15.	active recreation, performance/ gathering	1250505900	no
SiteA15	yes	D	Agriculture	P	yes	2/3 w/in 10 YFP	no	54.4	vicinity to housing development and I-15, access issues	active recreation, interpretive center, staging area	1251310100 & 1250800400	maybe

TIer A Site Evaluation Matrix

Tier B Park Uses - Passive Park Nodes
Tier B park uses are medium-low intensity passive uses that are primarily elements that have minimal impacts to the existing site (no significant grading or removal of native vegetation and minimal influence to sensitive biologic resources). They have relatively small footprints and accommodate passive activities such as picnicking, bird watching, resource interpretation, etc. Tier B activity nodes will be dispersed throughout the River Park along the park's trail network.

Due to the sensitivity of much of the habitat within the river corridor traversed by the park trails, it was also important to establish criteria for locating these passive activity nodes. Important Tier B site selection criteria include trail access (road edge or unofficial trail), a currently/ recently disturbed condition, and/or minimal native vegetative cover.

Because the vegetation/ habitat is much less sensitive in upland areas, it is relatively easy to locate Tier B sites uplands areas. Upland Tier B sites should be selected in conjunction with upland trail improvements - based on views, slopes, exposure, interpretive opportunities, etc.

Shown (opposite page) is a map identifying potential Tier B sites within the riparian corridor that were analyzed and photos a few of the best potential Tier B sites that could be incorporated into the official trail system, if possible. The sites shown here are disturbed, and have only sparse native vegetation cover. Site B14, the Walnut Grove, is perfect location for a picnic area incorporated into a historical agricultural site. Site B17, in the heart of the riparian zone, is a unique location for picnicking or bird watching, and is easily accessible by trail from both sides of the river. Site B32 is a large disturbed site that could include significant restoration gardens and interpretation.


Interpretive Signage


Picnic Area


Birder

Potential Tier B Sites within thec Riparian Corridor


Site B14


Site B17


Site B32

Tier C Park Uses - Trail System

Tier C sites consist of the multi-use (hiking, biking, equestrian) trails and several small hiking-only trail segments through more sensitive habitat areas. These sites will be linear in nature and will weave through both riparian and upland park environments, providing access to the park's diverse natural and cultural resources. Conceptual trail locations described within this Master Plan will need to be finalized through detailed negotiations with landowners regarding land acquisition or the establishment of trail easements across private property. The primary goal of the proposed trail network is to provide continuous year-round access to the River Park's amenities and circulation throughout the CSA. Finally, the trail network will contribute to the County Trails Master Plan and can be planned/ adjusted as needed through the Community Trails Master Plan.

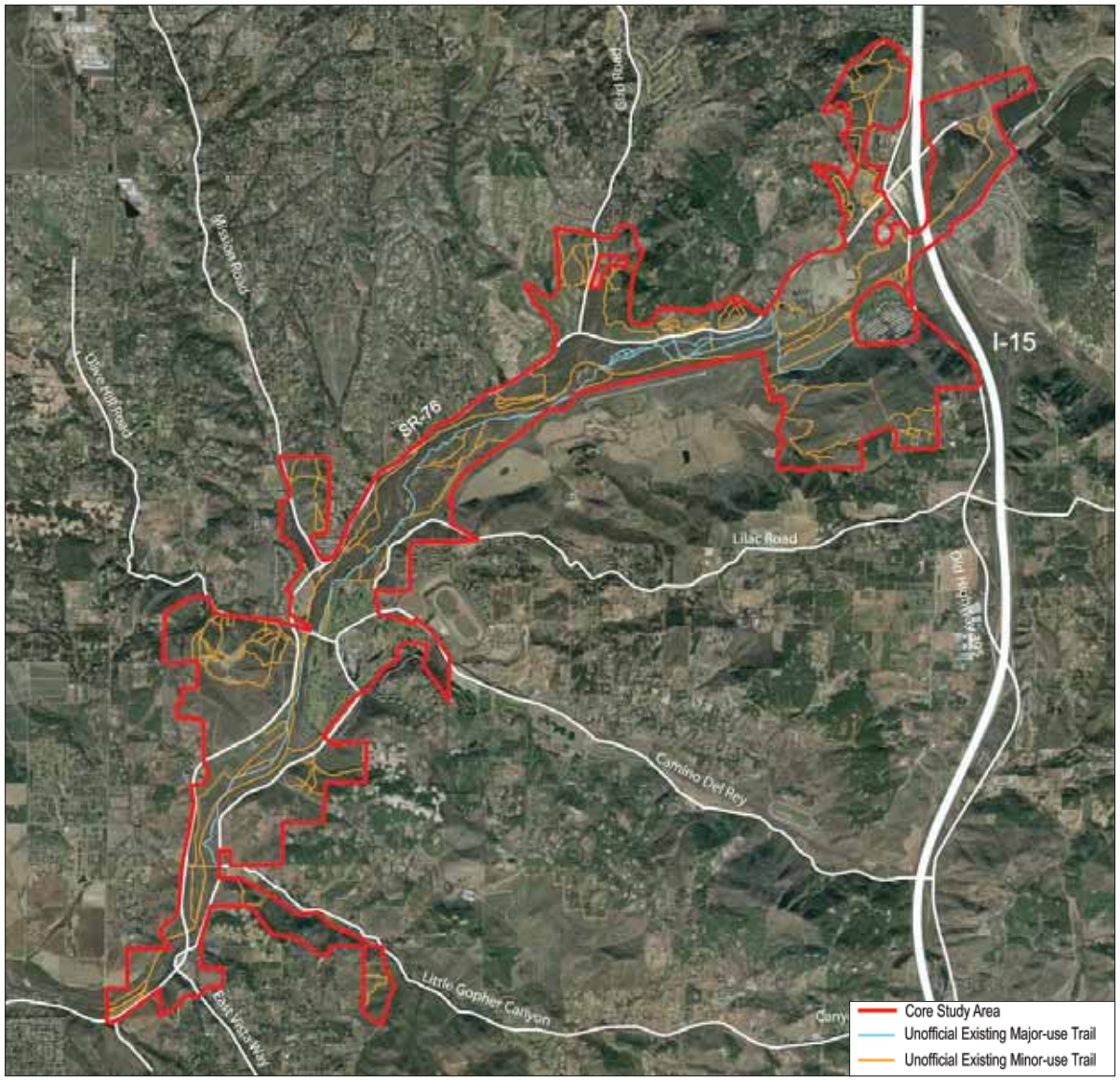
Existing Unofficial Trail Network

The first step in locating the proposed trails was mapping the existing unofficial trail network throughout the CSA. The diagram (opposite page) shows the extent of these unofficial trails, as could be identified in aerial photography, limited visual surveys, and information provided by trail users. Use of these existing unofficial trails is either through permission granted to selected individuals/ groups by private property owners, or by trespassing, although this is largely unenforced. The existing trail network is characterized by redundant parallel trails, destructive off-road vehicle use, and multiple river crossings that destabilize the river edge, increase erosion rates, and contaminate the water. Existing trails also foster unauthorized/ undesirable use of the river corridor as temporary living quarters for the region's homeless population, by providing access while not having enough use to discourage long-term habitation. This trail network creates a network of disturbance throughout the most sensitive riparian habitat areas.

Proposed Trail Network

The proposed trail network is intended to implement, to the extent possible, the County of San Diego Trails Master Plan, which identified a need for two trails through this segment of the SLR River corridor, one north of the river and the other to the south. Exact locations of these trails will be established in subsequent detailed design phases. These precise locations will be the product of detailed site surveys, biologic resource inventories, coordination with the landowners (in the event that the County is unable to acquire the property), and further coordination with other park elements and trail access locations. The proposed conceptual trail locations connect park activity nodes, parking/ staging areas, and surrounding communities.

Existing Unofficial Trails - (Private Property)



Existing Trails Map

The construction of new trails or improvement of existing unofficial trails will require minor grading, minimal vegetation clearing, and possibly fence installation. New trail bridges would be required to provide year-round access through the river corridor and a continuous trail from I-15 to the Old Bonsall bridge. Although not within the scope of this project, a long term County goal is to connect the park westward to Oceanside's trail network and eastward toward the mountains so that one day there will be a continuous trail from the ocean to the mountains.

In creating the official network of park trails, the Master Plan proposes the formalization of selected existing "unofficial" trails (improvement to the trails to conform to County multi-use trail guidelines) while selectively adding new trail fragments where necessary to create critical connections. This strategy will minimize new impacts to sensitive habitat areas while capitalizing on existing time-tested "desire lines". The vast majority of other existing unofficial trails on lands acquired by the County would be decommissioned (closed) and restored/ preserved as habitat. The overall trail strategy would thus be to consolidate trail access and use onto fewer trail corridors and isolate habitat disturbance related to trail use, thereby creating a dramatic net benefit to the river corridor's overall habitat value.

ENVIRONMENTAL PLANNING
Opportunities and Constraints

The Environmental Planning opportunities and constraints within the Master Plan Core Study Area (CSA) are the result of research, inventory and analysis of environmental planning issues and policies relevant to the San Luis Rey River Park Master Plan process.

Environmental Constraints within CSA

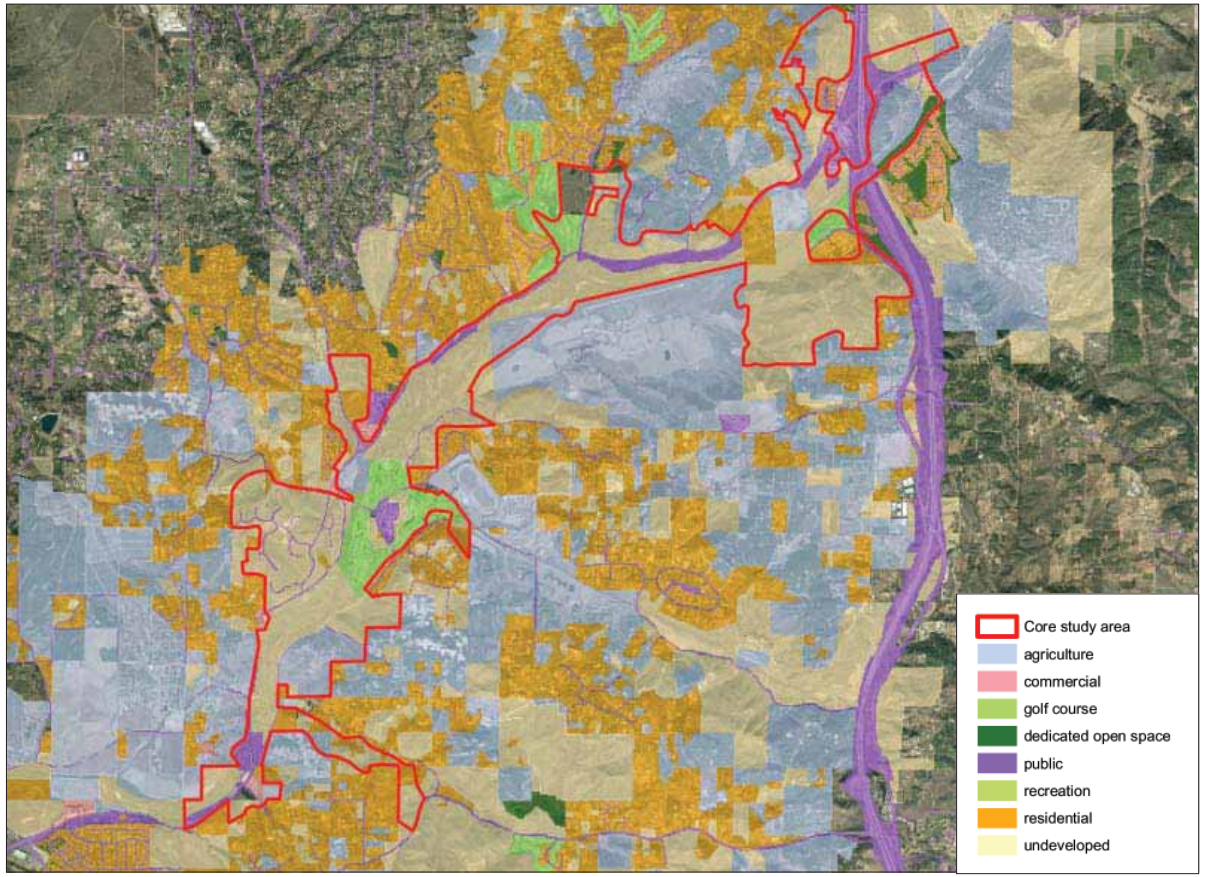
The literature and data search and associated analysis resulted in the identification of the following environmental/ planning constraints within the CSA. These constraints may restrict the location of physical improvements. However, features such as steep slopes, sensitive biological resources, visual resources, and cultural resources may also be incorporated into the design of proposed improvements or provide interpretive opportunities.

Land Acquisition Potential: The lack of public property within the CSA creates a fundamental constraint to park development, as the County will have to enter into agreements with private property owners before implementation of any park improvements;

Steep Slopes: Areas with slope gradients over 10% aren't suitable for active recreational uses;

Sensitive Biological Resources: Presence of sensitive biological resources including wetland and rare upland vegetation communities, sensitive plant and animal species and their proposed or designated critical habitat, and resources under the jurisdiction of the U.S. Army Corps of Engineers, California Department of Fish and Game, and the Regional Water Quality Control Board present constraints to park development;

Visual Resources: Critical visual resources such as historic sites (i.e. Bonsall Bridge), areas of mature native vegetation, wetland habitats, major rock outcroppings, agriculture, and equestrian facilities present constraints to park development; Avoiding visual resources such as rock outcroppings may restrict the location



Land Use Map

of certain improvements. However, opportunities exist to design proposed improvements to incorporate visual resources such as rock outcroppings, native vegetation, equestrian and agricultural facilities;

Land Use Considerations: Presence of existing land uses or restrictions including urban development or land use restrictions such as easements or Planned Development of a project on vacant land present a constraint to park development;

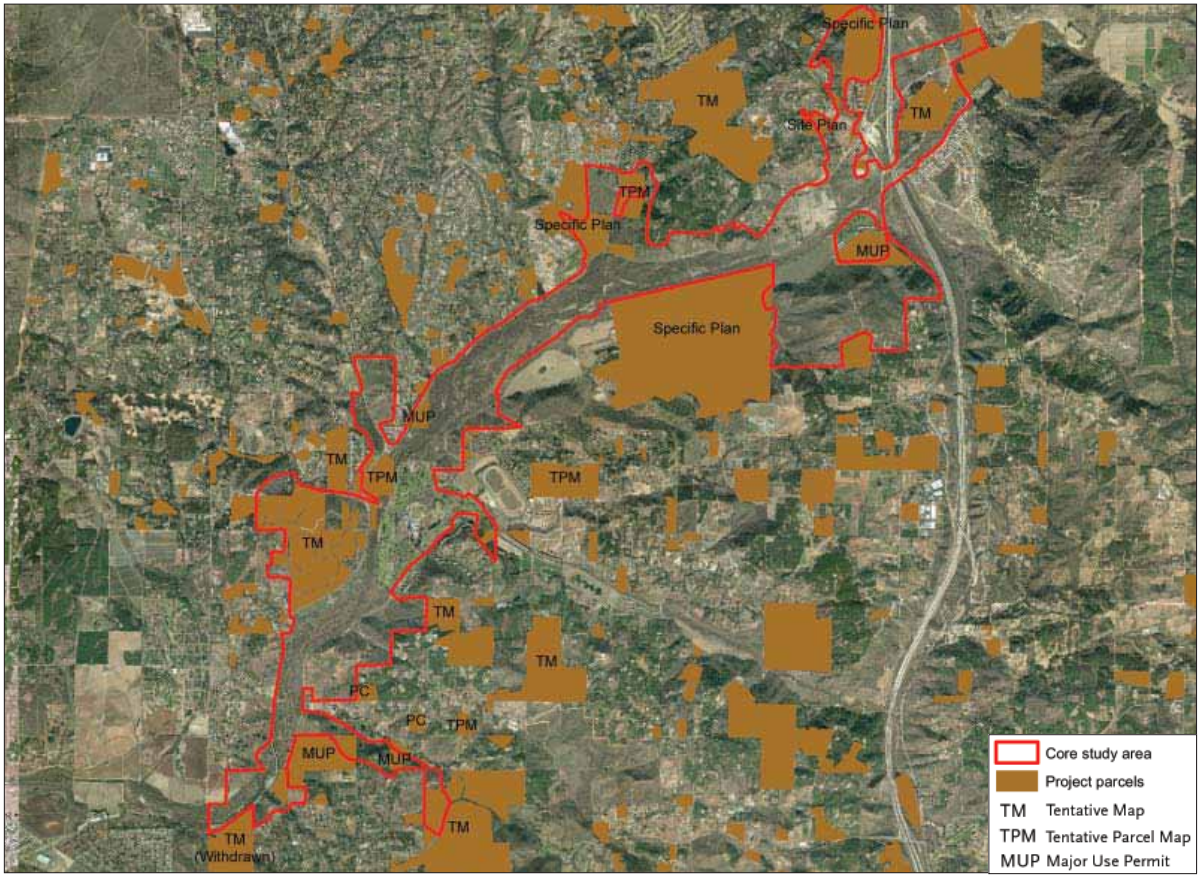
Floodplains: Presence of 100-year flood plain and 10-year floodway present some constraints to park development;

Cultural and Historic Resources: Known significant cultural, historic, and prehistoric sites present constraints to park development.

Geotechnical Hazards: Presence of known geotechnical hazards such as faults, landslides, areas subject to liquefaction, or highly erosive soils present constraints to park development;

Environmental Opportunities within the CSA

The opportunities for park development must address the goals of the community as expressed in the public community meetings, Bonsall and Fallbrook Community Plans and focus group meetings. The primary opportunities for Master Plan programs should take advantage of the natural resources of the river valley by limiting the amount of park development allowed within areas characterized by native vegetation and steep slopes. Opportunities exist to implement low impact passive recreational uses that take advantage of the visual, biologic, and cultural resources within the river valley, including extension of pedestrian/ equestrian trails.



Discretionary Projects

ENVIRONMENTAL PLANNING
Recommendations Summary

The San Luis Rey River Park represents a unique opportunity to provide much needed recreational amenities to the North County region. As such, Tier A, B, and C sites and park programming should provide for both local and regional recreational demands.

All park sites should be developed in a manner that minimizes impacts upon sensitive biologic resources, while providing desirable access to, and interpretation of, the diverse biologic, cultural, and hydrologic resources within the San Luis Rey River corridor. Where Tier B and C programming must be inserted within sensitive biologic areas to achieve recreational goals, it is recommended that they are placed on disturbed or sparsely vegetated sites that are currently accessible from the existing unofficial trail network.

These park elements will have to be carefully designed to minimize impacts upon the surrounding resources:

Certain Tier A programming, including structures and lighting should be located out of the 10-Year Floodplain out of the most sensitive habitat areas and in low slope areas (under 10%). Structures and lighting should also be located above or out of the 100-year floodplain. The exception are program uses such as sports fields, which can be flooded on a regular basis.

Tier B programming should be located in disturbed or un-vegetated areas where park facilities can be connected with the Tier C trail network to foster appreciation, and interpretation, of the river corridor's diverse resources.

The Tier C trail network should provide access to the diverse range of river corridor environments (and experiences), from exposed upland chaparral hillsides with expansive views over the river to secluded dense riparian woodlands and the river itself. To the extent feasible the official trail network should capitalize upon the existing network unofficial trails, thus minimizing the establishment of new trail corridors through sensitive biologic areas.

Minimal impacts of improved or new trails, and Tier B programming, should be mitigated within the river corridor through the enhancement or recreation of habitat on unnecessary unofficial trails and disturbed areas within the riparian zone.

The Master Plan should be fully coordinated with all current studies and planning initiatives including, but not limited to, the North County Multiple Species Conservation Program, the future expansion or improvement of State Route 76, and the General Plan 2020. Park programming goals of the Master Plan should, where feasible, be incorporated into the text of the North County Multiple Species Conservation Program and the General Plan 2020 update documents including the Regional Land Use element and any community plan updates. Although approval of the Master Plan by the County of San Diego does not require that a development permit be issued, future implementation of park programming recommended by the Master Plan would be subject to the requirements of the California Environmental Quality Act CEQA.

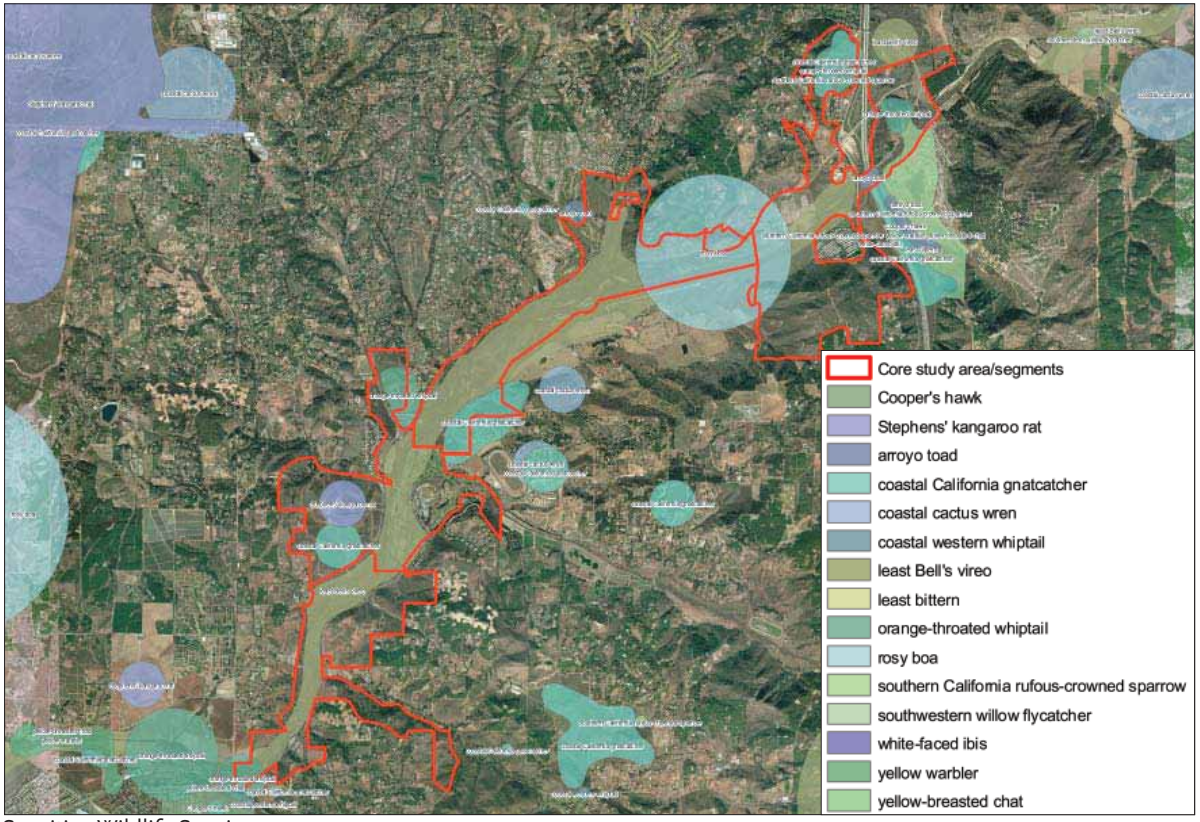
Sensitive biological resources are known to occur within the Master Plan Draft Core Study Area (CSA); therefore, a Biological Constraints and Opportunities Report was prepared to:

Identify areas within the CSA boundary that have the least biological constraints to park development;

Identify areas within the CSA boundary that are important for preservation and that may be utilized as mitigation for project impacts to biological resources associated with park development as well as other development proposals in the area (i.e., improvements of SR-76);

Identify areas within or adjacent to the CSA boundary that offer opportunities for habitat restoration/ enhancement, which would improve the overall biological value of the San Luis Rey River corridor;

Identify regulatory approvals associated with park development within the CSA.



Sensitive Wildlife Species
Source: California Natural Diversity Data Base

Biological Constraints within the CSA

The literature/ data search and biological surveys resulted in the identification of the following biological constraints within the CSA:

Wetland vegetation communities (i.e., freshwater marsh, southern riparian forest, riparian scrubs, etc.);

Rare upland vegetation communities (i.e., coastal sage scrub, southern mixed chaparral, non-native grassland, etc.);

Sensitive plant species (known and/or considered to have potential to occur – i.e., San Diego ambrosia, Orcutt's pincushion, and Chaparral nolina);

Sensitive wildlife species (known and/or considered to have potential to occur – i.e., arroyo toad, coastal California gnatcatcher, least Bell's vireo, southwestern willow flycatcher, etc.);

Designated critical habitat for the coastal California gnatcatcher and the least Bell's vireo and proposed critical habitat for the southwestern willow flycatcher; and

Wetlands and/or waters under the jurisdiction of one ore more of the following agencies: U.S. Army Corps of Engineers (USACE), California Department of Fish and Game (CDFG), and the Regional Water Quality Control Board (RWQCB).

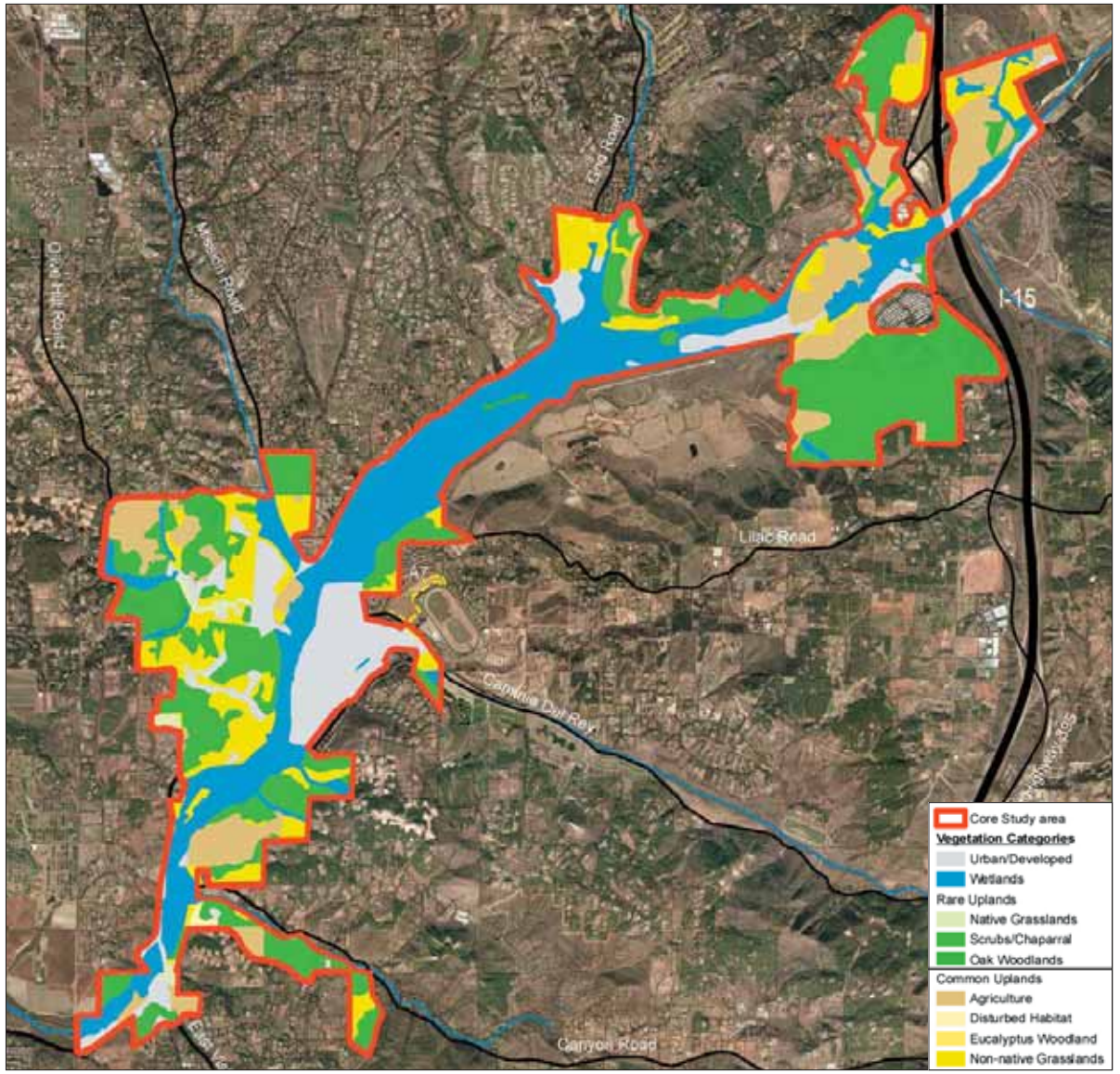
Vegetation communities present within the CSA can be grouped into the following general vegetation categories:

Wetlands;

Rare Uplands (which include native grasslands, scrubs/ chaparral and oak woodlands); and

Common Uplands (which include agriculture, disturbed habitat, eucalyptus woodland and non-native grasslands).

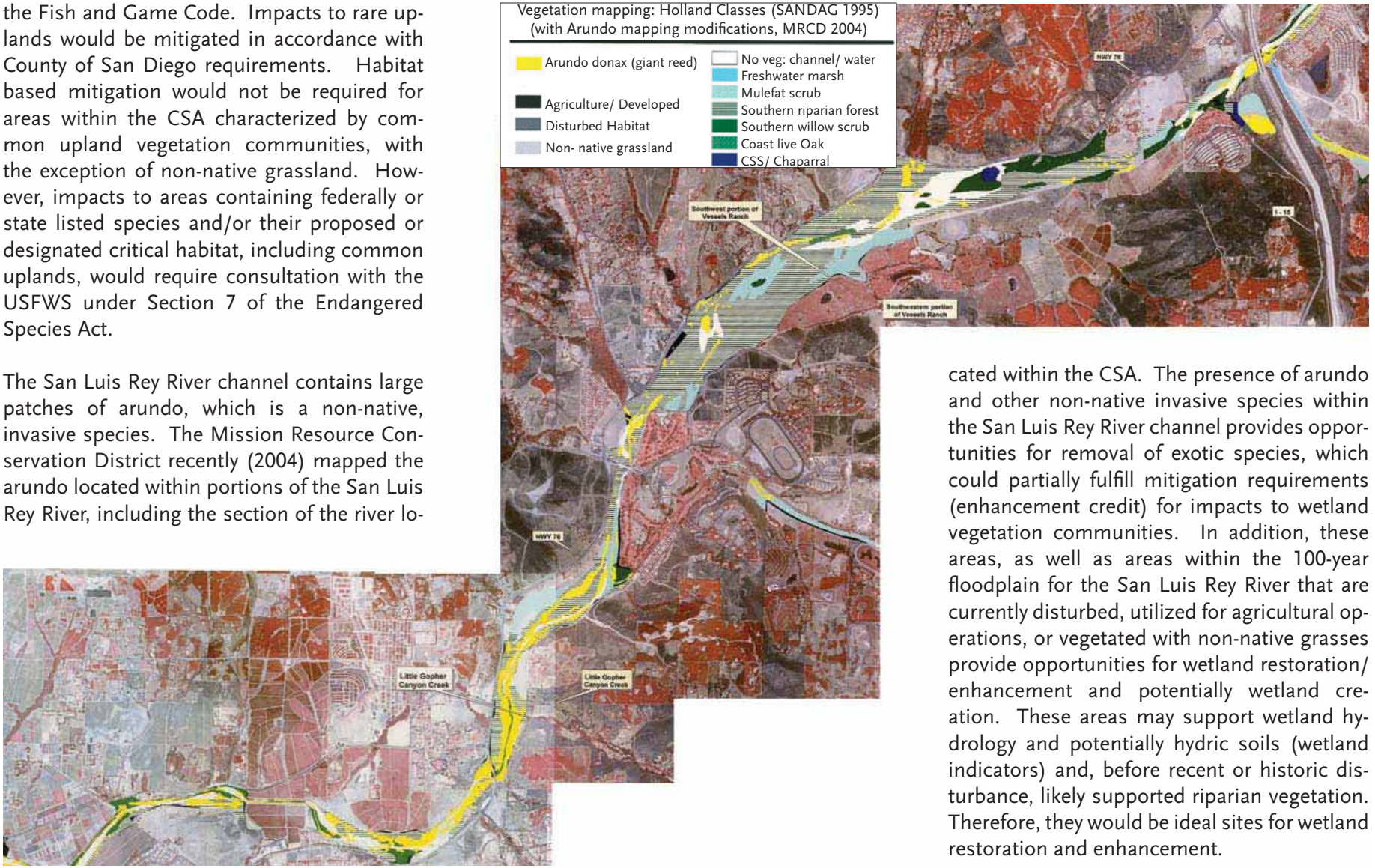
Impacts from planned park programming to any areas within the CSA characterized by wetlands or rare upland vegetation would require mitigation. Impacts to wetlands would need to be mitigated in accordance with the requirements of the USACE/ RWQCB and Sections 404 and 401 of the Clean Water Act and with requirements of the CDFG and Section 1602 of



Vegetation Sensitivity Map

the Fish and Game Code. Impacts to rare uplands would be mitigated in accordance with County of San Diego requirements. Habitat based mitigation would not be required for areas within the CSA characterized by common upland vegetation communities, with the exception of non-native grassland. However, impacts to areas containing federally or state listed species and/or their proposed or designated critical habitat, including common uplands, would require consultation with the USFWS under Section 7 of the Endangered Species Act.

The San Luis Rey River channel contains large patches of arundo, which is a non-native, invasive species. The Mission Resource Conservation District recently (2004) mapped the arundo located within portions of the San Luis Rey River, including the section of the river located within the CSA. The presence of arundo and other non-native invasive species within the San Luis Rey River channel provides opportunities for removal of exotic species, which could partially fulfill mitigation requirements (enhancement credit) for impacts to wetland vegetation communities. In addition, these areas, as well as areas within the 100-year floodplain for the San Luis Rey River that are currently disturbed, utilized for agricultural operations, or vegetated with non-native grasses provide opportunities for wetland restoration/ enhancement and potentially wetland creation. These areas may support wetland hydrology and potentially hydric soils (wetland indicators) and, before recent or historic disturbance, likely supported riparian vegetation. Therefore, they would be ideal sites for wetland restoration and enhancement.



Arundo Map- Mission Resource Conservation District, 2004

BIOLOGICAL RESOURCES
Recommendations Summary

Based on the field surveys, the literature review, and experience with other projects with similar biological issues, general recommendations for park development include the following:

The preservation, restoration, and long-term maintenance/ management of areas containing wetland and rare upland vegetation communities, while providing some access to, and interpretation of, the river corridor's biological resources;

The removal of non-native, invasive species within the San Luis Rey River corridor;

Wetland enhancement/ restoration efforts on areas identified as opportunity sites for wetland creation/ enhancement;

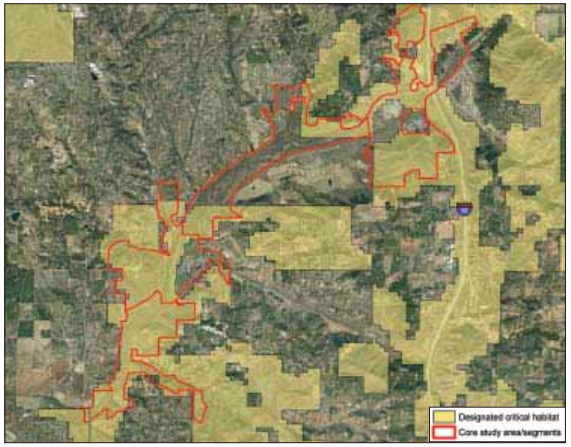
Focus the placement of active Tier A park sites and programming (i.e., parking lots, staging areas, active recreation, etc.) within areas characterized by non-sensitive vegetation communities such as disturbed habitat, eucalyptus woodland, and non-native grasslands or existing agricultural sites.

To the extent feasible while still meeting the park goals, focus the placement of passive park development (Tiers B and C – interpretive kiosks, bird watching platforms, etc.) within areas characterized by common upland vegetation communities such as disturbed habitat, eucalyptus woodland and, non-native grasslands. Passive park programming located within areas characterized by wetlands or rare upland vegetation communities, including riparian woodlands, native grasslands, scrubs/ chaparral and oak woodlands, should be placed within areas of current or previous disturbance and carefully designed to minimize impacts on sensitive biological resources.

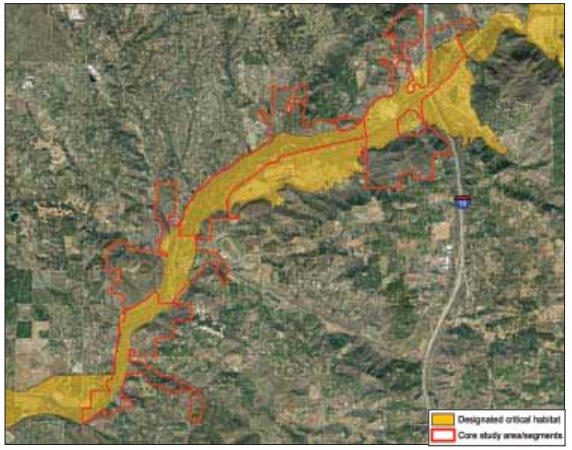
The recommendations listed above are general recommendations for park planning and were used as tools to guide the development of the Master Plan alternatives. These recommendations, and associated figures, do not represent specific boundaries where park program elements are precluded. It is anticipated that negotiations with the resource agencies (i.e., USFWS, CDFG, USACE, and RWQCB) will ultimately determine what park features are acceptable within different areas of the CSA. Concerns likely to be raised by the resource agencies include: any impact, whether resulting from active park programming (play fields, etc.) or passive park programming (picnic tables, trails, etc.), to jurisdictional resources (USACE wetlands and non-wetland waters, RWQCB waters, and CDFG streambeds) and impacts to federally listed species or their proposed/ designated critical habitat. It should be noted that project-level analysis will ultimately be required to determine exact impacts to sensitive vegetation communities, sensitive species and their proposed and designated critical habitats, and jurisdictional wetlands/ waters. Mitigation measures will also need to be identified that will reduce impacts to below a level of significance.

California Gnatcatcher
credit: Hans Spiecker


Least Bell's Vireo
credit: www.bird-friend.com/birdPage.php?name=Bell



California Gnatcatcher Designated Critical Habitat



Least Bell's Vireo Designated Critical Habitat

The following species are endangered, and are protected by federal law. Their presence in the river corridor may impact development on certain sites, and presents an impetus for the preservation of sensitive habitat areas.

California Gnatcatcher

The California Gnatcatcher inhabits coastal sage scrub covering large areas of low-lying, shallowly-sloped land. They prefer to nest in sparsely vegetated areas, and establish home ranges during breeding season of 5 to 50 acres. The California Gnatcatcher breeds February through August, and is non-migratory.

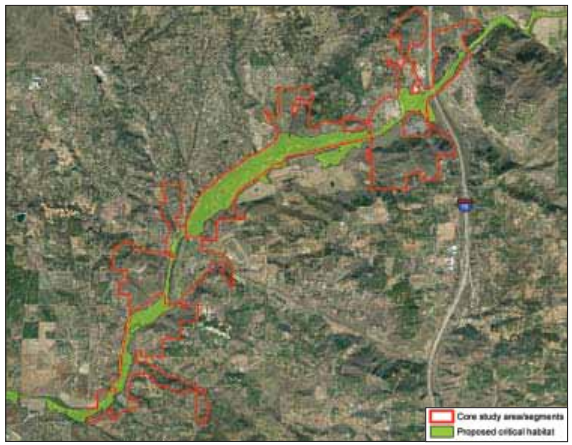
Least Bells Vireo

The Least Bell's Vireo is found in willow dominated riparian woodlands amidst successional shrub and thicket. They prefer dense, low shrubs for breeding and nesting, usually about one meter from the ground. Breeding occurs from March through September before their southern migration.

Southwestern Willow Flycatcher
This migratory bird inhabits dense stands of willow, cottonwood, and tamarisk along riparian corridors. Breeding occurs from April through July; nests are built by in tree branches near open water.

Arroyo Toad
The habitat of the arroyo toad is characterized by low gradient streams adjacent to willows and mulefat. The arroyo toad requires shallow pools with gravel substrate and sandy terraces to breed. Breeding occurs from March through July. In the non-breeding season, Arroyo Toads will disperse up to one kilometer from the stream breeding sites into adjacent uplands if soil conditions are appropriate.


Southwestern Willow Flycatcher
credit: http://www.backfromthebrink.org/pop_up_slide-show.cfm?animalid=5

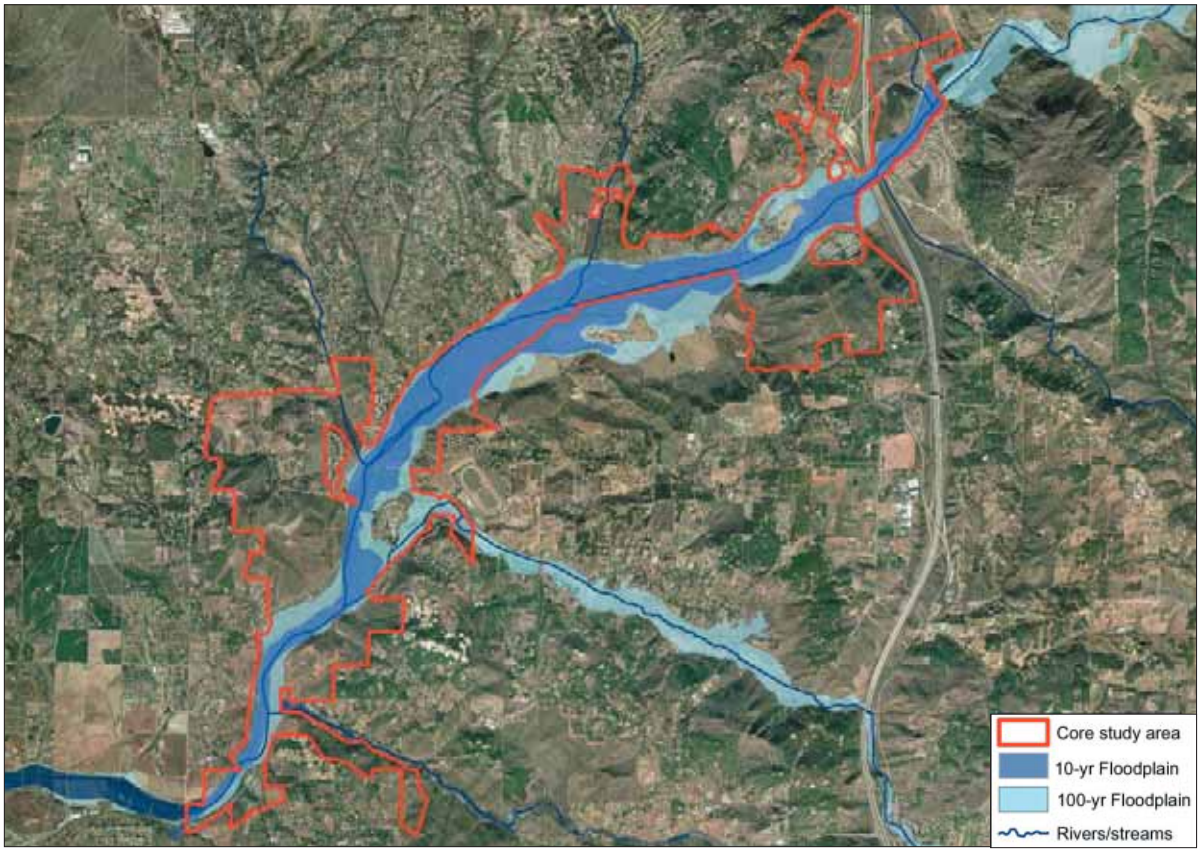


Southwestern Willow Flycatcher Proposed Critical Habitat


Arroyo Toad
credit: William Flaxington, sierraclubcalifornia.org

RIVER HYDRAULICS AND FLOOD PLAIN ISSUES
Opportunities and Constraints

The 10-year and 100-year floodplains within the Core Study Area have been mapped to determine regulatory and physical constraints resulting from potential floodwater, and to identify opportunities and constraints relating to the San Luis Rey River Park. A 100-year flood is one that is predicted to be exceeded in magnitude once in every 100 years on average. The limits of the 10-year and 100-year floodplains were determined and delineated by the County of San Diego in 1974 and the 100-year floodplain was updated in 1997. 100-year limits of inundation shown within the CSA generally agree with current floodplain maps maintained by the County and FEMA.



10-Year and 100-Year Floodplains

Regulatory constraints include federal and County code restrictions on development within floodplains. Certain activities are prohibited and others are limited in the designated 100-year floodway. The zone between the 10-year and 100-year floodplain limits is an appropriate location for recreational uses including athletic fields, trails and passive activities. Such uses are permitted, provided they do not impede the flood flow. Land within the 10-year floodplain is suitable only for recreational uses such as sports fields and trails that will not suffer significant damage as a result of frequent flooding. Trail bridges across the floodway and permanent architectural structures should be built above 100-year flood levels. Utilities, and park amenities that would be damaged by frequent flooding, should be kept out of the 10-year floodplain.

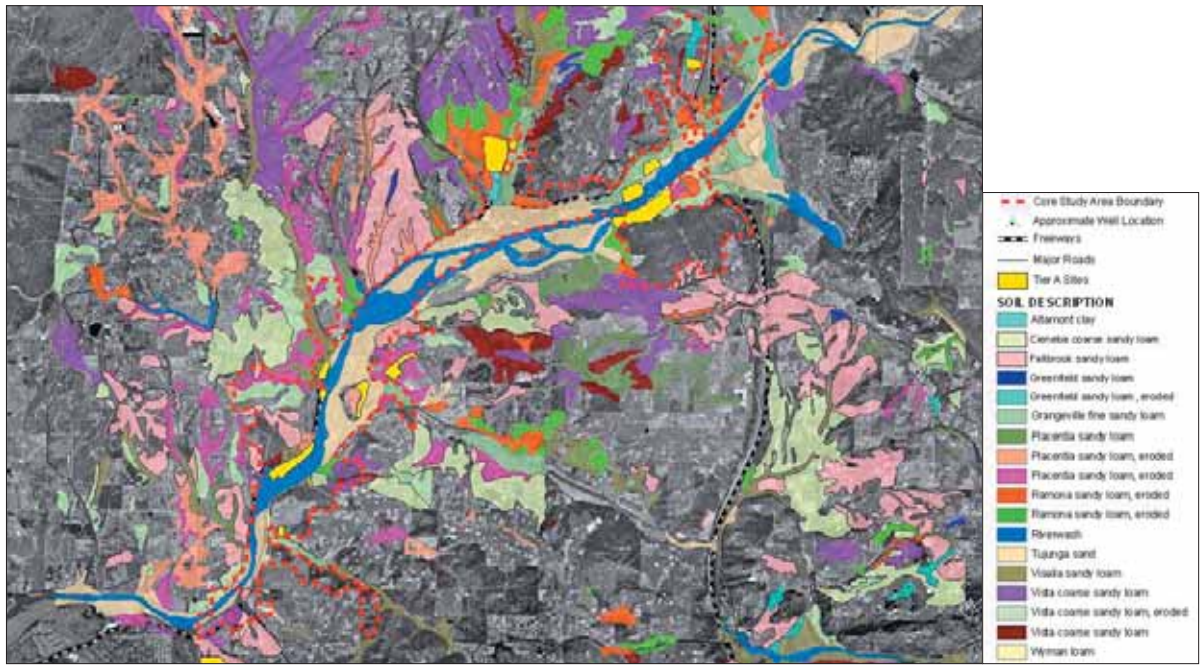
Within the designated 100-year floodway, all improvements and all grading, landscaping and other activities must be carefully planned and designed to withstand flooding and to avoid impeding the flow of floodwaters.

The widening and/ or relocation of SR-76 will almost certainly result in alteration of the 100-year floodplain. Continued coordination of park planning with this effort is strongly recommended. Opportunities for integrating some park elements into the SR-76 project should be pursued.

Preservation of the water quality and water resources in the San Luis Rey River is a critical consideration in the development of the River Park. Precautions must be taken to not contaminant the ground water and the river. Additionally, soil erodibility is another factor when siting park development.

The geologic formations which underlie the CSA include recent active-channel and floodplain deposits of gravel, sand, silt, and clay; older, more consolidated floodplain deposits; and Cretaceous and Jurassic age igneous rocks. The Site lies within the Bonsall Hydrologic Unit (903.12) of the Lower San Luis Rey Hydrologic Area of the San Luis Rey Hydrologic Unit. The groundwater that underlies the CSA is within the Bonsall Aquifer, which completely underlies the CSA. The beneficial uses of groundwater in the Bonsall Hydrologic Unit include municipal, agricultural, and industrial supply. Although the scope of the Master Plan was not to determine uses of groundwater within the CSA and the project area, many wells (more than 100) are known to be present within the river valley between the Bonsall Bridge and I-15. The wells may be used for commercial, agricultural, and or residential water supply purposes. Therefore, protection of surface water and groundwater quality within this active groundwater use basin is essential. Surface water uses include agricultural and industrial supply, as well as recreation and habitat. The San Diego County Water Authority and Rainbow Municipal Water District are evaluating plans to potentially use the Bonsall Aquifer for potable supply, and this use appears to be compatible with the use of the overlying CSA as a low-intensity park.

Preservation of open space areas such as the proposed Park can significantly improve and protect both surface water and groundwater quality. Reduced development and preservation of open space in a park can reduce the potential for contaminants in surface water and groundwater including siltation and dissolved chemicals including hydrocarbons, and allow for filtration and degradation of contaminants through the natural system prior to reaching water sources. The benefits of protecting surface water and groundwater quality include preservation of the aesthetic value of open spaces with water, protection of a potential and existing water supply in a semi-arid climate where water is a precious resource, protection of aquifers that may be used in the future for development of a water supply or for aquifer storage and recovery, and overall health



Well Location and Soils Map

of the habitat which utilizes surface water and groundwater for survival.

The CSA overlies six major soil types, several of which are presented as having severe suitability restrictions for recreation due to susceptibility to erosion. The soil types that have high erosion potential primarily occur within the 10-year floodplain. Therefore, considerations for development in the floodplain (damage or destruction of property, loss of use due to severe erosion) are the same considerations that would be used for consideration of erosion potential. Therefore, development of park programming within highly erodible soils could occur, understanding of the dynamic nature of the area.

Land uses within the CSA appear to be generally compatible with the development of a park and protection of water quality. An environmental database inquiry for the CSA and surrounding area indicated that 117 files were listed for the CSA and surrounding areas. However, after a more detailed review of the database, only five sites were of concern. The five sites are identified as having leaking underground storage tanks (UST). The five sites are located adjacent to the CSA, however, their environmental status should not impact development of the park.

Soil Unit	Description	Erodibility	Common Uses	Recreation suitability				Tier A Site Number
				Play Areas	Campsites	Picnic Areas	Paths and Trails	
Riverwash	Sandy and gravelly, excessively drained and rapidly permeable	severe	recreation and wildlife habitat	severe	severe	severe	severe	3,6,12
Tujunga Sand	coarse sand to loamy fine sand, some gravelly sand, very rapidly permeable	slight	recreation and agriculture	severe	severe	severe	severe	8,12,15
Visalia Sandy Loam	loam, fine sandy loam, sandy loam, moderately rapid permeability	slight	agriculture	slight	slight	moderate	slight	3
Grangeville Fine Sandy Loam	very fine sandy loam to sandy loam, moderately rapid permeability	slight	recreation and agriculture	moderate	moderate	moderate	moderate	2,10,11, 12,13
Placentia Sandy Loam	sandy loam to fine sandy loam and sandy clay to heavy clay loam, very slow permeability	slight to moderate	agriculture and range	severe	severe	moderate	slight	3,5,7
Ramona Sandy Loam	sandy loam, loam, to coarse sandy loam moderately rapid permeability	slight to moderate	agriculture, housing, pasture	severe	moderate	moderate	slight	9
Greenfield Sandy Loam	sandy loam to coarse sandy loam and clay loam to sandy clay loam, moderately slow permeability	severe	agriculture and pasture	severe	moderate	moderate	slight	14
Fallbrook Sandy Loam	Sandy loam, fine sandy loan, to sandy clay loam, moderate permeability	severe	agriculture, pasture, housing	severe	moderate	moderate	slight	1
Cieneba Coarse Sandy Loam	Coarse sandy loam, rapid permeability	severe	range, wildlife habitat, recreation	severe	severe	severe	severe	4

Recreation suitability
Slight = normal site inspection and precaution during planning and construction are required
Moderate = careful site inspection, more than normal precautions
Severe = development costs may be high, esthetic value or location may justify expenditure to overcome limitations

Table 1: Soil Characteristics and Suitability

The active recreation areas within the CSA should be designed with surface water quality as high priority. Active recreation (Tier A sites) should be developed to minimize stormwater runoff, (e.g., use of pervious pavements), erosion, and the potential for pollutants to come in contact with stormwater and discharge to the river (e.g., use of detention basins to retain and treat stormwater). Interpretive kiosks could be developed in areas where stormwater is treated to educate the park users of the sensitive nature of water quality within the park.
Many inactive wells are known to be present within the CSA. If the wells do not present a health and safety hazard, are located away from potential sources of contamination, the process of destroying the wells in accordance with Department of Water Resources (DWR) standards could have a significant impact to the surrounding habitat, and/or funds are not available to properly destroy the wells, the destruction of the wells may be delayed until such time as the destruction is necessary, feasible, and can be funded. When practicable, the wells should be abandoned according to DWR standards to ensure public safety and protection of groundwater quality.

CULTURAL RESOURCES
Opportunities and Constraints

Sensitive cultural resources (prehistoric and historic) are known to occur within the Master Plan Draft Core Study Area (CSA); to address the issues of sensitive cultural resources, a Cultural Resources Constraints and Opportunities Report was prepared to:

Identify areas within the CSA boundary that have the least cultural resource constraints to park development;

Identify areas within the CSA boundary that are important for preservation of prehistoric and historic resources

Identify areas that afford an opportunity to preserve and enhance cultural resources within the CSA;

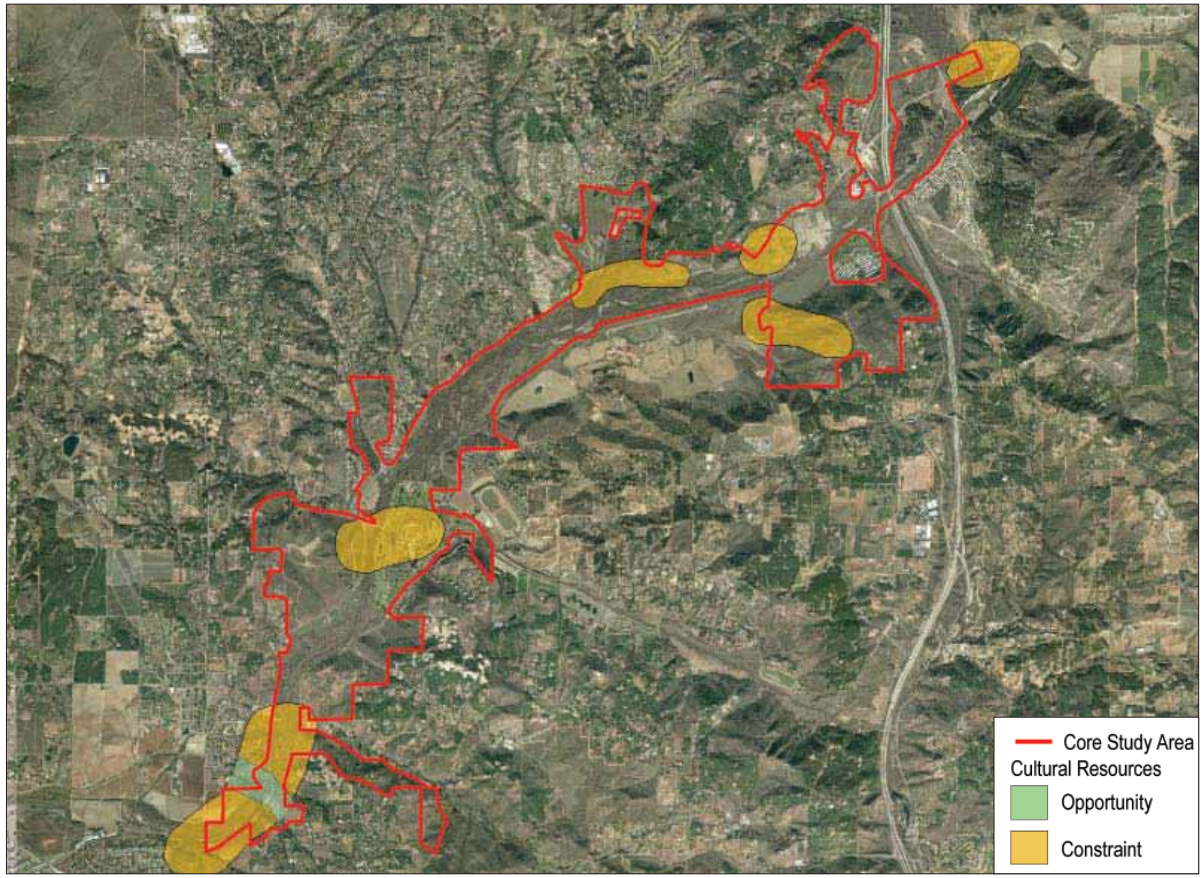
Identify those cultural resources (typically prehistoric sites) that can be used to interpret the prehistoric and history of Native American (Luiseno) people of the San Luis Rey River drainage;

Identify regulatory approvals, such as the U. S. Army Corps of Engineers, associated with park development within the CSA.

Cultural Resource Constraints within the CSA
The literature/ data search resulted in the identification of the following tentative cultural resource constraints within the CSA:

Sensitive riparian and vegetation communities contain plants that are of cultural significance for local Luiseno people including materials for baskets, medicine, pigments, and other uses;

Sensitive cultural resource sites (prehistoric) are likely to exist within the CSA in those areas of the park that have not been systemically surveyed (the majority of the park);



Cultural Resource Map

Sensitive cultural resource sites will require further study and avoidance to ensure that the cultural and scientific value present at these sites are not damaged or impaired by development, maintenance, and use of the park.

Cultural Resources within the CSA

The literature/ data search resulted in the identification of the following cultural resource opportunities within the CSA:

Access for Luiseno people to use plants for traditional purposes such as medicine, basketry, and other functions within the San Luis Rey River corridor;

Survey and recordation of cultural resource sites within those portions of the San Luis Rey River corridor that have not been studied;

Development of an interpretive program that focuses on the prehistory and history of the San Luis River as an area occupied by humans for thousands of years, and

Preservation and interpretation of prehistoric and historic sites within the larger context of the river corridor.

CULTURAL RESOURCES
Recommendations Summary

Based on the literature review, a meeting with Native American parties, and consistent with federal, state, and local protocols, general recommendations for park development include the following:

Incorporate within the Master Plan the preservation, interpretation, and long-term maintenance/ management of the river corridor's cultural resources;

Prior to developing specific land uses and activities that would disturb the existing landscape, conduct a full scale archaeological and historical survey of the areas of potential effect;

Continue consultation with local Luiseno people regarding their sensitivities and recommendations for preserving and enhancing cultural resource sites and native vegetation of interest to them);

Focus the placement of active Tier A park sites and programming (i.e., parking lots, staging areas, and active recreation) within areas of lower sensitivity levels based on the results of the recommended full scale archaeological surveys; and

To the extent feasible while still meeting the park goals, focus the placement of passive park development (Tiers B and C – interpretive kiosks, bird watching platforms, etc.) within areas of current or previous disturbance and carefully designed to minimize impacts on sensitive cultural resources.

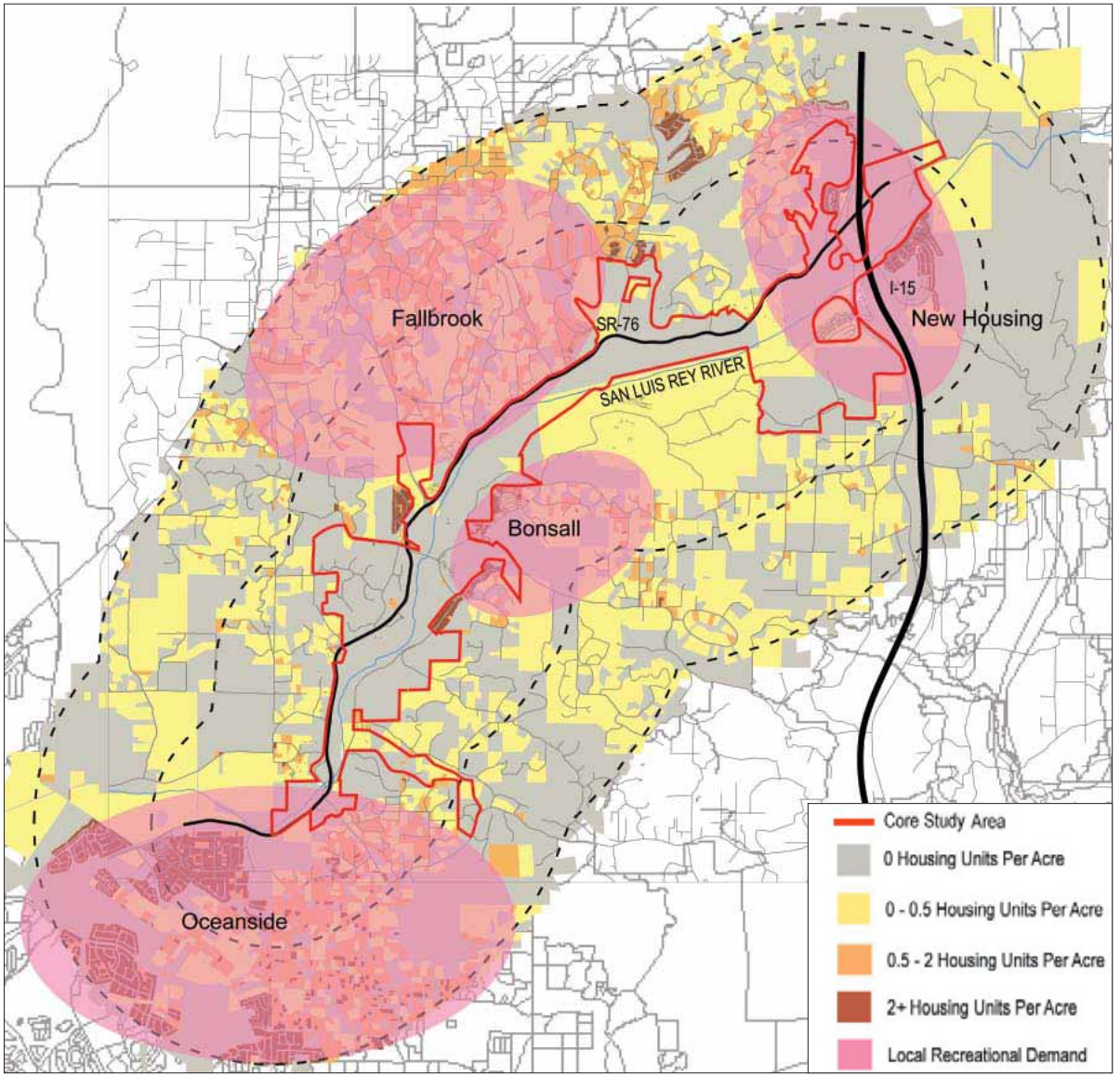
The recommendations listed above are general recommendations for park planning and are intended as a tool to guide the development of Master Plan alternatives. It should be noted that project-level analysis of cultural resources ultimately will be required to determine the type and severity of impacts to sensitive resources. Mitigation measures will also need to be identified that will reduce impacts to below a level of significance.

Bedrock Milling Site

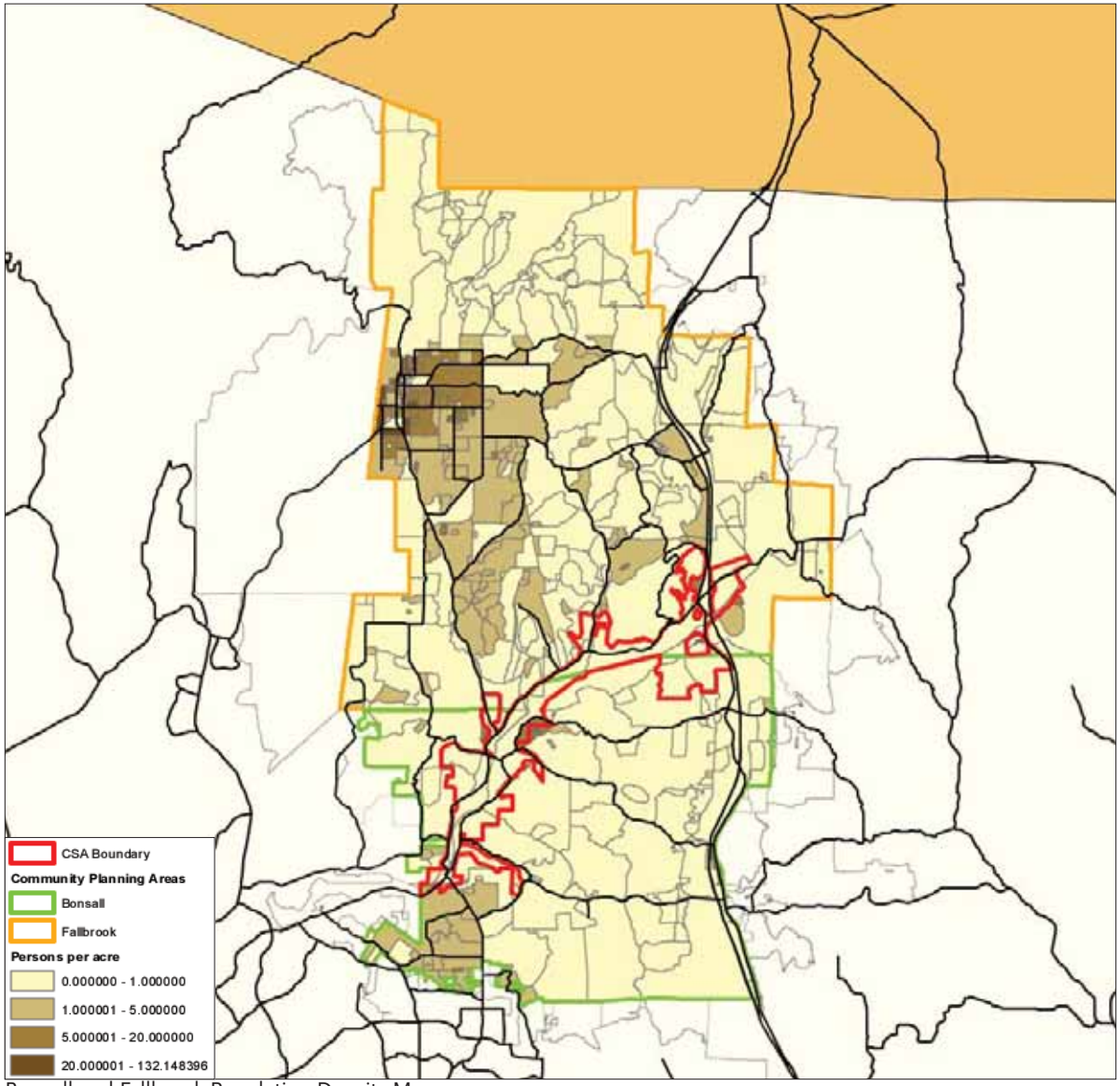
ACTIVE RECREATIONAL NEEDS

Through meetings with the active recreation focus group, input from the community, and a survey of existing public sports fields within the River Park's service area, it became apparent that there was a dramatic shortage of sports fields in the area surrounding the Core Study Area (CSA). The shortage is so great that many sports teams do not have home fields to host games and many existing fields are degraded by overuse.

The Planning Team determined potential locations for sport fields by examining proximate population densities, CSA access locations, and potential active recreation site availability. Relatively large populations exist at both ends of the study area: Oceanside, to the west, and existing/ planned housing densities near I-15 to the east. Towards the center of the CSA, constitute a third, smaller, area of active recreation demand. In response to this demand assessment, the Planning Team proposed to locate significant active recreation nodes at both ends of the CSA, supplemented by a smaller node in the center of the park. This distribution will begin to satisfy recreational demands, while decreasing park-related traffic congestion along SR-76.



Population Density Map

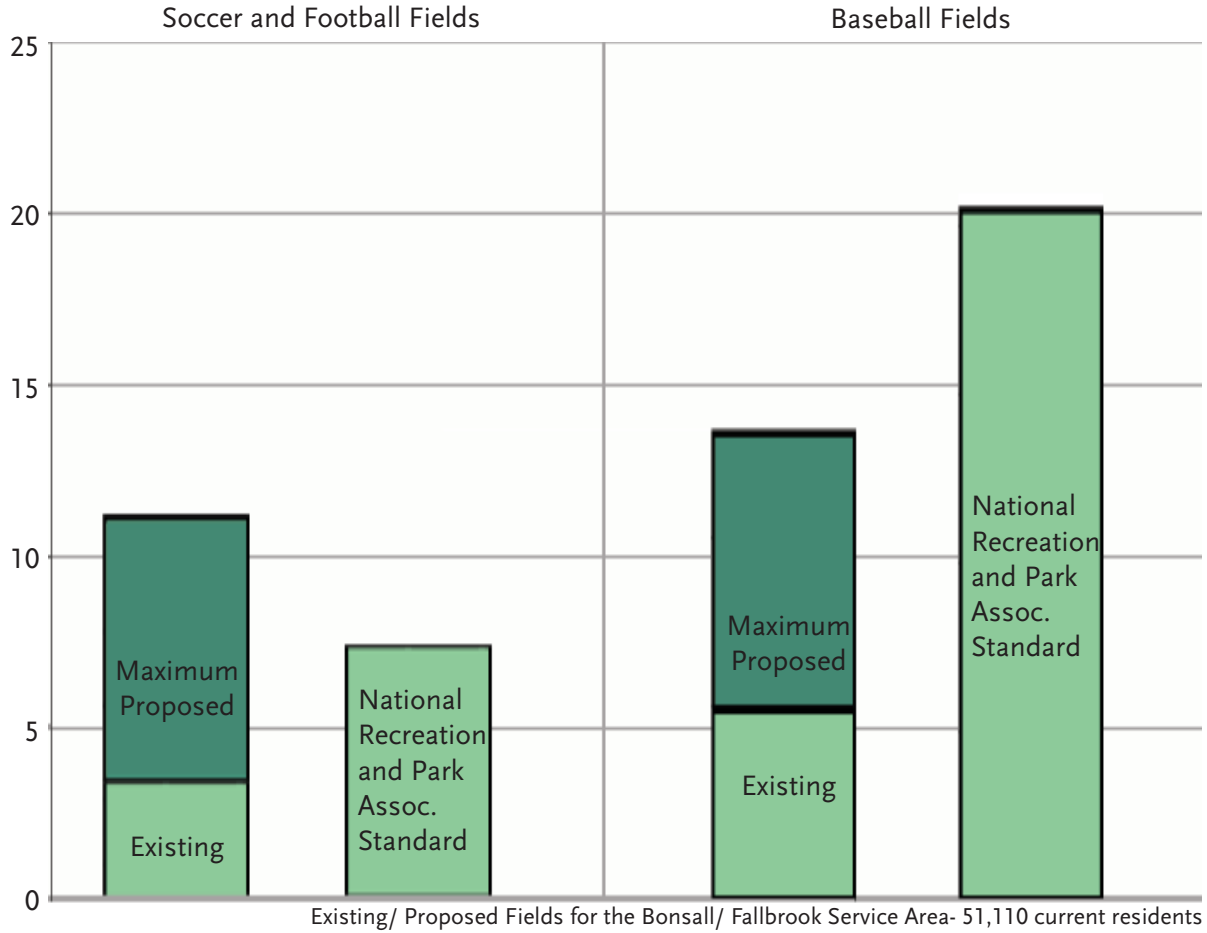


Bonsall and Fallbrook Population Density Map

After the general locations of these recreation nodes were determined, the appropriate quantity of fields was assessed. The planning team utilized the standards established by the National Recreation and Park Association (NRPA) to help determine the number of fields needed to satisfy recreational demands of the Bonsall-Fallbrook population, which currently totals 52,138.

Soccer and football fields were calculated together, as both sports can be played on the same fields. There are currently 3.5 fields in the area (multi-use or shared fields were counted as ½ a field). The NRPA standard for this population would be 7.8 fields, based on one soccer field per 10,000 people and one football field per 20,000 people. Therefore, the Master Plan proposes a maximum of 8 new soccer/ football fields to help meet the community's needs. The number of fields proposed is based on population and on the concept of building fields in increments of 4, which allows for convenient tournament play. While soccer is the most popular sport in the area, other sports such as lacrosse, field hockey, and ultimate frisbee are increasing in popularity and would be using these same fields.

Based on the NRPA standard of one baseball field per 5,000 people and one softball field per 5,000 people, the service area should contain 20.8 baseball and softball fields. There are only 5.5 existing fields in the service area. The maximum number of new baseball/ softball fields proposed is 8, which, again, is based on the idea of building fields in increments of 4 for tournament play.



Existing/ Proposed Fields for the Bonsall/ Fallbrook Service Area- 51,110 current residents